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CANTOR COLBURN LLP-IBM YORKTOWN
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EXAMINER

CHENEY, BOBAE K.

ART UNIT	PAPER NUMBER
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2458

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/587,618	Applicant(s) EILAM ET AL.	
	Examiner BOBAE K. CHENEY	Art Unit 2458	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 4-9, 11, 12, 24 and 38-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10, 13-23, 25-37 and 44-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/05/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claim 3 has been amended by applicant. Claims 4 – 9, 11, 2, 24, and 38 – 43 are cancelled by applicant. Claim numbers will be renumbered in accordance with rule 1.126.

Claim Objections

2. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

3. A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

4. Claim 10 is depended on claim 9, which is canceled. For the purpose of examination of application, examiner will assume that claim 10 is depended on claim 1.

5. Claims 32 and 33 are objected to because of the following informalities: Claims 32 and 33 claim "... provides an operation taken form a group of operations..."

Examiner believe applicant's claim should be "...provides an operation taken from a group of operations..." Appropriate correction is required. For examining purpose, Examiner will interpret the word "form" as "from."

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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7. Claims 13, 16, 25, 28, and 47 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 13, 16, 25, 28, and 27 are claiming "article of manufacture" or "computer program," which are software per se. In the specification, paragraph 202 cites' "an article of manufacture which comprises a computer usable medium having computer readable program code." Article of manufacture is not tied to process, machine, manufactures, or composition, which is program per se.

8. Claims 15, 27, 29 – 33, and 44 – 46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The "apparatus" in claims 15, 27, and 44 – 46 are not tied to process, machine, manufactures, or composition. Therefore, claims 15, 27, and 44 – 46 are claiming software per se.

9. Claims 13, 14, and 26 recite a computer readable medium or program storage device. It can be reasonably interpreted that the computer readable medium or program storage device would include embodiments including propagation media, such as carrier waves, which fail to establish a statutory category of invention. Amending the specification as well as the claim to recite "a non-transitory computer readable medium or program storage device" is believed to be sufficient to overcome this rejection.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 29 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. “Any policy” in claim 29 is not clear which policy is considered as “any policy.” For examining purpose, examiner will interpret “any policy” as policies related to a domain.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. **Claims 29 and 47** are rejected under 35 U.S.C. 102(e) as being anticipated by Pitts (US Patent 6,847,968).

14. Regarding to **claim 29**, “an apparatus comprising a plurality of collectors to represent a plurality of domains in a computing utility, each of said collectors being linked to at least one other collector, each collector having: a controller to control reserved resources fro each domain,” Pitts teaches NDC (collector) declaring itself as consistency control site [Colum 4 Line 47 – 67]. “A policy advisor to interpret any policy,” Pitts teaches domain manager in NDC using policy data to regulate access to files [Column 12 Line 25 – 34]. “A resource manager to manage resource acquisition for computing environment,” Pitts teaches domain manager in NDC [Column 7 Line 27 – 42].

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15. **Claim 47** is similar to claim 29. Therefore, claim 47 is rejected under the similar ground.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claims 1, 2, 3, 10, 13, 14, 15, 16, 34, and 16** are rejected under 35 U.S.C.

103(a) as being unpatentable over Shanumgam (US Patent 6,708,187) in view of Hauser (US Patent 5,889,956).

18. Regarding to **claim 1**, "a method comprising providing an automatic hierarchical management of a computing infrastructure for at least one domain for an entity, said step of providing hierarchical management comprising: obtaining a hierarchical representation of said at least one domain," Shanumgam teaches hierarchical organization of VPN clouds [Figure 13, Column 12 Line 52 – 62]. "Said representation including: a list of computing environments to be managed," Shanumgam teaches list of VPN clouds to be managed [Figure 13]. "Instantiating the representation," Shanumgam teaches displaying VPN clouds representation [Figure 13, Column 12 Line 26 – 40]. "At least one policy controlling acquisition of at least one resource from resource libraries for said at least one domain, and any sub-domains within said at least one domain," Shanumgam teaches VPN rules [Figure 13, Column 13 Line 1 – 6]. Shanumgam does not expressly teach resource from resource libraries for the domain. However, Hauser

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teaches hierarchical resource management specifying maximum amount (policy) of resource to be allocated to the respective entity [Column 2 Line 1 - 28]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have resources taught by Hauser in hierarchical environment taught by Shanumgam for the purpose of easily distinguish different levels of resources allowed to the different levels of users. Also, this will make security stronger by preventing low level users to access high level resources.

19. Regarding to **claim 2**, "deriving a set of resources required for said list of computing environments in constructing said hierarchical management," Hauser teaches resources governed by resource usage levels (hierarchical) [Column 2 Line 1 – 26]. "Providing resources for said set of resources to said at least one domain," Hauser teaches memory managed in a hierarchical manner provides resources to departments (domain) [Figure 5, Column 6 Line 26 – 42].

20. Regarding to **claim 3** "further comprising at least one limitation taken from a group of limitations consisting of: further comprising updating said at least one policy of the representation; further comprising utilizing library services; further comprising associating each computing environment with a particular sub-domain; wherein the step of utilizing includes reserving a set of resources required by said list of computing environments; further comprising acquiring the set of resources and using at least one resource from said set of resources; wherein said at least one domain is a plurality of domains; wherein at least one domain from said at least one domain is a sub domain of another domain; further comprising associating at least one library service from said

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library services with at least one collector; wherein both the quantity and types of base resources change over time; wherein said method is employed in providing service on-demand; wherein said at least one resource is a base or composite resource; **further comprising organizing said at least one resource into a service offered to a plurality of customers**; further comprising allocating base resources to a library service; further comprising formulating composite resources from base resources satisfying a service, description; further comprising allocating composite resources to a library service; and further comprising allocating services to a library service.”

Shanumgam teaches VPN cloud allow users to access sites (service) [Column 12 Line 40 – 45].

21. Regarding to **claim 10**, “wherein at least one of said at least one domain is a root domain,” Shanumgam teaches hierarchical organization of VPN clouds, VPN cloud is top of the hierarchy. Therefore, VPN cloud is root domain [Column 12 Line 52 – 63, Figure 13].

22. Regarding to **claim 34**, “a requesting computing environment making a request for a particular combination of resources,” Hauser teaches requester (requesting computing environment) requesting or a memory resource [Column 7 Line 28 – 35]. “checking said representation of the acquisition policy of said requesting computing environment to verify that satisfaction of the request for the particular of resources is within the acquisition policy of said requesting computing environment; and repeating the step of checking for all parent collector of said requesting collector until any root collector is reached,” Hauser teaches determining the request will be granted or

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rejected based on the minimum provided and maximum allowed (policy) [Figure 3, Column 7 Line 28 – 35].

23. Regarding to **claim 35**, “further comprising determining if the acquisition policy is satisfied all the way to any root collector; if the acquisition policy is satisfied the request is granted otherwise the request is denied,” Hauser teaches determining the request will be granted or rejected based on the minimum provided and maximum allowed (policy) in each level (all the way to any root collector) [Figure 3, Column 7 Line 28 – 35].

24. **Claims 13, 14, 15, and 16** are similar to claim 1. Claims 13, 14, 15, and 16 are rejected under the similar grounds.

25. **Claims 36 and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanumgam and Hauser as applied to claim 1 above, and further in view of Pitts (US Patent 6,847,968).

26. Regarding to **claim 36**, Shanumgam teaches hierarchical management, but does not expressly teach “making a request for a particular combination of resources.” Pitts teaches requesting data (resource) [Column 2 Line 36 – 39]. “Determining a starting collector to start a search for the combination of resource,” Pitts teaches flowing the request to NDC (collector) [Column 2 Line 40 – 49]. “Checking if the starting collector has at least one resource from said combination of resources, said at least one resource being a located resources; checking if there is at least one library which includes at least one resource from said combination of resources, said at least one resource being a located resources; repeating the step of checking at each collector from a starting collector to any root collector; if all resources of said combination are

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located resources reserving all located resources, otherwise denying the request," Pitts teaches if the requested data isn't present in the NDC, then NDC access elsewhere for missing data, which means it checks collectors for data [Column 2 Line 61 – 67]. It would have been obvious to one of ordinary skill in the art at the time of the invention to request data and searching for data taught by Pitts in hierarchical management taught by Shanumgam for the purpose of allow users to find and retrieve data that user wants in short time.

27. Regarding to **claim 37**, "further comprising calling arbitration to continue locating all resources from said combination of resources," Pitts teaches if the requested data isn't present in the NDC, then NDC access elsewhere for missing data [Column 2 Line 61 – 67].

28. **Claims 17 – 23, and 25 - 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitts (US Patent 6,847,968) in view of Shanumgam (US Patent 6,708,187).

29. Regarding to **claim 17**, "creating an automatic hierarchical representation of a computing infrastructure, for an entity comprising organizing the entity into a domain tree of domains," Pitts teaches establishing a hierarchical domain tree that encompasses digital computers [Column 5 Line 44 – 59]. "Wherein each domain represents an organization within the entity," Pitts teaches root domain representing digital computer files [Column 5 Line 44 – 59]. "Said each domain obtains computing environments and resources from a computing utility," Pitts teaches each network distributed caches (domain) with file system tree (resources) [Figure 3, Column 6 Line

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53 – 67]. Pitts does not expressly teach obtaining computing environment. However, Shanumgam teaches hierarchical organization of VPN clouds (computing environment) [Figure 13, Column 12 Line 52 – 62]. It would have been obvious to one of ordinary skill in the art at the time of the invention to obtain computing environment taught by Shanumgam in hierarchical domain tree taught by Pitts for the purpose of establishing better connections between computing units. Different computing environment has different network environment that fits best for the computing environment.

30. Regarding to **claim 18**, “determining computing environments to be associated with each domain, Shanumgam teaches hierarchical organization of VPN clouds (computing environment) [Figure 13, Column 12 Line 52 – 62]. “Determining an acquisition policy and a distribution policy for each domain,” Shanumgam teaches VPN rules (acquisition policy) [Figure 13, Column 13 Line 1 – 6]. Pitts teaches enforcing file access policies (distribution policy) [Column 5 Line 66 – Column 6 Line 19]. “Converting the domain tree into a collector hierarchy,” Pitts teaches establishing a hierarchical domain tree [Column 5 Line 44 – 59]. “Connecting said collector hierarchy into a hosted root collector for a hosted environment,” Pitts teaches establishing the hierarchical domain tree by exporting (connecting) a root for the domain tree [Column 5 Line 44 – 59].

31. Regarding to **claim 19**, “further comprising using said hosted environment to provision at least one computing environment and at least one resource to said entity,” Pitts teaches retrieving files stored in file system tree through domain root [Column 5 Line 60 – 65].

32. Regarding to **claim 20**, “wherein the step of connecting is performed by a service provider,” digital computer (server) establishes the hierarchical domain tree by exporting (connecting) a root for the domain tree [Column 5 Line 44 – 59].

33. Regarding to **claim 21**, “wherein the step of connecting includes connecting collector hierarchies for a plurality of customers of the hosted environment into the hosted root collector,” Shanumgam teaches users (customers) connected to VPN cloud (root collector) [Figure 13].

34. **Claims 25, 26, 27, and 28** are similar to claim 17. Therefore, claims 25, 26, 27, and 28 are rejected under the similar ground.

35. Regarding to **claim 22**, “inserting a collector as a hierarchy root collector of the collector hierarchy,” Pitts teaches the network distributed caches (collector) is inserted in root domain [Figure 3 part 50, Column 7 Line 27 – 42]. “determining a number of computing environments of the root domain of the domain tree and whether a sub domain of a root domain of the domain tree exist, if there is only one computing environment and no sub domains of a root domain of the domain tree, inserting a PMRS in the collector hierarchy and terminating the step of converting, otherwise, for each computing environment of said root domain of the domain tree, adding a collector and PMRS to the root collector of said collector hierarchy; determining sub domains of said root domain of the domain tree that have only one computing environment: for each sub domain of said root domain of the domain tree that has only one computing environment and no other sub domain, inserting a PMRS into the collector hierarchy, for each sub domain of said root domain of the domain tree that h~ more than one computing

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environment or other sub domains, placing said each sub domain on a domain processing list; and repeating the step of inserting a collector, the step of determining a number of computing environments for each domain on the domain processing list as if it were a root domain, and the step of determining sub domains of said root domain of the domain tree that have only one computing environment, until said domain processing list is empty,” Pitts teaches distributed data service (PMRS) in domains and sub-domains [Abstract, Column 7, Line 1 – 14].

36. Regarding to **claim 23**, “wherein the step of connecting is performed by a service provider,” digital computer (server) establishes the hierarchical domain tree by exporting (connecting) a root for the domain tree [Column 5 Line 44 – 59].

37. **Claims 30 – 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitts as applied to claim 29 above, and further in view of Antognini (US Patent 5,649,185).

38. Regarding to **claim 30**, Pitts teaches collector, but does not expressly teach “said apparatus further comprising at least one base resource library service, at least one collector is associated with at least one of said at least one base resource library service, said base resource library service having a Resource Operations interface and a Catalog interface.” However, Antognini teaches library server with ser of order routines (resource operation) and catalog [Column 5 Line 60 – Column 6 Line 6]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have library server taught by Antognini in collector taught by Pitts for the purpose of manage the data sources easily at the collector.

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39. Regarding to **claim 31**, “wherein said at least one base resource library service includes at least one public Base Resource Library Service to provide library services to at least one domain, said public base resource library service having a Resource Operations interface and a Catalog interface,” Antognini teaches library server providing service to library client (domain) [Figure 1, Column 5 Line 4 – 13].

40. Regarding to **claim 32**, “wherein said Resource operation interface provides an operation taken form a group of operations consisting of: Reserve, CancelReservation, CheckIn, CheckOut, Query, Update; and any combination of these operation,” Antognini teaches library server’s set of order routines including store (CheckIn) and Retrieve (CheckOut) [Column 5 Line 60 – Column 6 Line 6].

41. Regarding to **claim 33**, “wherein said Catalog operations interface provides an operation taken form a group of operations consisting of: Reserve, Add, Remove, Update, Query, and any combination of these operation,” Antognini teaches query ordering a library catalog inquiry and update ordering a change to records in a library catalog [Column 7 Line 45 – 49].

42. **Claims 44 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lumelsky (US Patent 6,460,082) in view of Antognini (US Patent 5,649,185).

43. Regarding to **claim 44**, “An architecture for a computing utility comprising an apparatus to provide at least one service for a plurality of clients, said apparatus comprising: a Base Resource Distribution Service to allocate resources to said at least one service; said Base Resource Distribution Service having at least one collector,” Lumelsky teaches service unit allocating resource [Column 5 Line 5 – 30]. Lumelsky

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teaches server with meta-resource (collector) [Column 5 Line 31 – 55]. “At least one Provisioned and Managed Resource Service coupled to said Base Resource Distribution Service to provision and manage said resources for said at least one service,” Lumelsky teaches server able to provisioning media [Column 5 Line 5 – 30]. Lumelsky does not expressly teach “at least one Base Resource Library Service coupled to said Base Resource Distribution Service to provide reservation and allocation of resources.” However, However, Antognini teaches library server [Column 5 Line 60 – Column 6 Line 6]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have library server taught by Antognini in base resource distribution service taught by Lumelsky for the purpose of manage the data sources easily at the collector.

44. Regarding to **claim 46**, “wherein the architecture is used by an on-demand service,” Lumelsky teaches the service unit is used in service on-demand [Column 5 Line 5 – 30].

45. **Claim 45** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lumelsky and Antognini as applied to claim 44 above, and further in view of Pitts (US Patent 6,847,968).

46. Regarding to **claim 45**, “an arbiter coupled to said base resource distribution service and available to each of said collectors, said arbiter provides dynamic resource allocation to each collector of said computing utility,” Lumelsky teaches service unit allocating resource [Column 5 Line 5 – 30]. Lumelsky teaches collector, but does not expressly teach “at least one collector, each collector anchoring a representation of a

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particular domain and holds policies of said particular domain and holds resources reserved for said particular domain.” However, Pitts teaches NDC (collector) declaring itself as consistency control site [Column 4 Line 47 – 67], domain manager in NDC using policy data to regulate access to files [Column 12 Line 25 – 34], and domain manager in NDC [Column 7 Line 27 – 42]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have collector taught by Lumelsky with policies of domain taught by Pitts for the purpose of control who can access the resource.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBAE K. CHENEY whose telephone number is (571)270-7641. The examiner can normally be reached on Monday - Thursday 7:30 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Avellino can be reached on (571)272-3905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BOBAE K CHENEY
Examiner
Art Unit 2458

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Examiner, Art Unit 2458

/Joseph E. Avellino/

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